

Application Serial Number 10/533,516  
Response to Office Action  
Dated November 13, 2006

### **1. Amendments to the Claims:**

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

#### **Listing of Claims:**

1. (Original) A method of detecting point correspondences between a first set of points and a second set of points, comprising the following steps:
  - finding of possible matching pairs comprising a point from the first set of points and a point from the second set of points, and
  - finding a maximum number of matching pairs.
2. (Original) A method as claimed in claim 1, wherein the finding of a maximum number of matching pairs comprises the following steps:
  - combining of two matching pairs at a time into a tuple to form a plurality of tuples,
  - determining an affine map for each tuple, that maps the two points in each matching pair of the tuple onto one another,
  - sorting of the plurality of tuples into a tuple list, and
  - creating a search tree on the basis of the tuple list.
3. (Original) A method as claimed in claim 2, wherein the sorting of the plurality of tuples into the tuple list comprises the following steps:
  - identifying valid tuples among the plurality of tuples by checking the plurality of tuples for validity,

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- assessing the valid tuples by a cost function to determine costs for the valid tuples,
- sorting the valid tuples and sorting the valid tuples into the tuple list, the valid tuples being sorted into the tuple list in ascending order by cost.

4. (Original) A method as claimed in claim 1, further comprising the following steps:

- determining a match rate and a hypothesis rate,
- forming a two-dimensional result space in which the match rate is entered along a first dimension and the hypothesis rate along the second dimension, and
- finding a point in the two-dimensional result space on the basis of the match rate and the hypothesis rate,
- forming a cluster in the result space, and
- finding a matching result on the basis of a distance of the point from the cluster.

5. (Original) A method as claimed in claim 1, wherein the point from the first set of points and the point from the second set of points are each points of note on fingerprint lines, the first set of points corresponding to a scanned fingerprint, the second set of points corresponding to a reference fingerprint, the points of note on the fingerprint lines in the scanned fingerprint allowing to be matched with the points of note in the reference fingerprint, and the method being a method of fingerprint verification in which the scanned fingerprint is compared with the reference fingerprint.

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6. (Original) A device for detecting point correspondences between a first set of points and a second set of points, comprising:

- a means for finding possible matching pairs comprising a point from the first set of points and a point from the second set of points, and
- a means for finding a maximum number of matching pairs.

7. (Original) A device as claimed in claim 6, wherein the means for finding a maximum number of matching pairs comprises:

- a means for combining two matching pairs at a time into a tuple to form a plurality of tuples,
- a means for determining an affine map for each tuple, that maps the two points in each matching pair of the tuple onto one another,
- a means for sorting the plurality of tuples into a tuple list, and
- a means for creating a search tree on the basis of the tuple list.

8. (Original) A device as claimed in claim 7, wherein the means for sorting the plurality of tuples into a tuple list comprises:

- a means for identifying valid tuples among the plurality of tuples by checking the plurality of tuples for validity,
- a means for assessing the valid tuples by a cost function to determine costs for the valid tuples, and
- a means for sorting the valid tuples and sorting the valid tuples into the tuple list, the valid tuples being sorted into the tuple list in ascending order by cost.

9. (Original) A device as claimed in claim 6, wherein the point from the first set of points and the point from the second set of points are each points of note on

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fingerprint lines, the first set of points corresponding to a scanned fingerprint, the second set of points corresponding to a reference fingerprint, the points of note on the fingerprint lines in the scanned fingerprint allowing to be matched with the points of note in the reference fingerprint, and the device being a mobile fingerprint verification device in which the scanned fingerprint is compared with the reference fingerprint.

10. (Original) A computer program for a fingerprint verification device, wherein point correspondences are detected between a first set of points and a second set of points, and wherein the computer program is arranged to perform the following steps:

- finding of possible matching pairs comprising a point from the first set of points and a point from the second set of points, and
- finding a maximum number of matching pairs.